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THE CAHOKIA MOUNDS

WITH 16 PLATES

A PRELIMINARY PAPER

BY
WARREN K. MOOREHEAD

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
URBANA

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UNIVERSITY OF ILLINOIS

PUBLISHED BY THE UNIVERSITY OF ILLINOIS
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PREFACE

It is a pleasure to thank those who contributed toward the Cahokia explorations of September-October, 1921. The President and Trustees of the University of Illinois have my gratitude for their liberal appropriation. Doctor A. R. Crook, Chief, Illinois State Museum Division, also contributed generously and I desire to express appreciation. The Trustees of Phillips Academy made an advance appropriation and financed the preliminary work, for which I thank them. As the museums and societies had already made their budgets for 1921, it became necessary to appeal to individuals. A grand total of $4800 was raised, of which the University of Illinois, the State Museum of Illinois and Phillips Academy, Andover, Massachusetts, gave $3,050. I hereby express sincere thanks to the following contributors:

Illinois Historical Society.....Springfield, Ill.
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Mr. and Mrs. Isaac Sprague.....Wellesley Hills, Mass.
John B. Stetson, Jr. .....Elkins Park, Pa.
Judge Edward Lindsey ..... Warren, Pa.
Miss Lucy L. W. Wilson.....Philadelphia, Pa.

It is thought best not to expand our list by including everyone who gave towards our explorations, but appreciation of their kindness is hereby expressed.

To the owners we are all greatly indebted. Without their cooperation and permission to explore, it would have been impossible to carry on our observations. The Ramey and Merrell families have my especial thanks; also Messrs. Edwards, Smith, Cole, Tippetts, Powell and Harding. To Mr. Kunnemann and other tenants of the properties, and Major Merrell (in charge of the ex-service men's camp) we were much indebted. All of the owners, both men and women, fully appreciate the importance of Cahokia and were and are willing to give a full measure of aid in any movement leading up to the preservation of these monuments.

INTRODUCTION

One stands upon the summit of the largest Cahokia mound and looks across the famous American Bottoms. He is one hundred feet above the plain and his vision is, therefore, not impaired since there are few buildings nearby, and trees not numerous save far to the south. Both the site and the view are conducive to reflection on the past and one's mind harks back to the days of Brackenridge, Flagg, and Featherstonehaugh—for these men saw Cahokia at its best. Fortunate indeed is it that these pioneers in Cahokia archeology gave us clear word pictures of conditions then, for while practically all of the tumuli remain, their external contour is altered. And after these pioneers came Rau, McAdams, Patrick, Putnam, Bushnell, and others who mapped and described the mounds as they saw them in the years 1874 to 1905.

Notwithstanding the preëminence of Cahokia over all other mound-groups in the United States there appears to have been little attempt at either study or exploration. Indeed, the several gentlemen who visited the mounds between the years 1874 and 1905 contented themselves with brief descriptions. The longest published account is the paper by Mr. D. I. Bushnell, Jr.*

Mr. W. W. McAdams, who was curator of the State Museum at Springfield, and Dr. J. J. R. Patrick seem to have excavated to a considerable extent in the cemetery northeast of the largest mound, yet I am unable to find any detailed record of their observations.

After reading all the references to Cahokia I consulted with witnesses who were present during McAdams' explorations and also with persons living in the vicinity who had more or less knowledge of conditions at Cahokia during the past fifty years. After one has examined the assembled evidence, both written and spoken, it is not difficult to explain the lack of thorough exploration of these famous mounds.

Most attention seems to have been concentrated on the largest tumulus locally known as Monks Mound. In fact, nearly all the descriptions center in this ranking structure. Mr. Thomas Ramey, the father of the present eight Ramey heirs, was probably the first owner of Cahokia property to manifest a real interest in the preservation of the mounds. This does not indicate, permit me to hasten

*Peabody Museum Report; 20 pages, 7 figures, and 5 plates.

to explain, that other owners today do not appreciate the importance of the group. On the contrary, the statement refers to the past—a period from about 1868 to 1890. Altho Ramey employed some coal miners from Collinsville and ran a short tunnel into the mound, and also permitted one or two excavations in mounds south of Monks, yet on the whole, he was adverse to excavations. From the time of his death until the summer of 1921 his heirs, the Misses and Messrs. Ramey, have refused permission to those who sought to excavate. This also applies to Mr. George B. Merrell and his family and the other owners. Numbers of persons visited the mounds with a view to exploration the past thirty years and several collectors in the neighborhood also sought to dig. We thus have the explanation, it seems to me, of the general impression that the owners were adverse to an examination of the mounds. As a result of many conversations with these owners I am prepared to state that they are not and have not been adverse to scientific research at Cahokia, but they think that such should be part of a definite plan which will culminate in the preservation of the area in a state or national park.

There is even a more potent reason why the mounds have not been examined. The undertaking would be very expensive. Until recent years no museum or institution could spend larger sums of money in American archeology excepting perhaps in Central and South America. Undoubtedly it would require years to properly explore Cahokia. A large force of labor would be required. Mr. Ramey, Sr., once desired to ascertain the cost of certain explorations, and requested an engineer to estimate the cost of two tunnels at right angles through the base of Monks Mound. Even in the days when labor was much cheaper, work could not be done short of $15,000. We trenched the Kunnemann mound through to the center, employing twenty men and using five teams and our expense was $600. It will thus be observed that without great outlay of both time and money an exploration of Cahokia would be impossible. These two factors explain why Cahokia is, today, practically unexplored.

In the light of modern archeological science, it is fortunate that Cahokia has not been explored. We should render all the owners a full meed of praise since they have protected these mounds at considerable expense for many years. Some forty-two acres are lost to cultivation. That is, on the several estates mounds not avail-

able for agriculture cover forty-two acres. Aside from taxes there are charges for drainage, roads, etc. This together with the loss of revenue from forty-two acres during the past twenty years amounts to many thousands of dollars.

THE VIEW FROM MONKS MOUND

We are again standing on the summit of this remarkable pyramid. Six miles to the west we clearly observe the great city of St. Louis. Four miles in the same direction is East St. Louis. A scant two miles west, northwest and southwest we see the encroaching factories and railway yards. The charm of the Great Plain, the primitive simplicity and beauty of the American Bottoms as observed by Brackenridge, Ford, and Featherstonehaugh is of the past. Yet looking directly south over the Merrell, Ramey, Tippett and Wells estates we note that there has not been so great a change. True, many of the mounds have been cultivated until the original contour is somewhat marred. Yet it would be no very great undertaking to restore them to the pyramidal and conical form. About the shores of the lake and in the woods and even beyond the railway, two-thirds of a mile south where is located the great Harding pyramid, are nearly a score of mounds in practically the same condition as they were a century ago. Eliminating a few mounds in the edge of East St. Louis here to the south and also to the north across Cahokia creek we have spread before us a great possibility (and we hope probability) of a state park.

Brackenridge's description, written in 1811 and published in 1814, has been so frequently quoted it is unnecessary to repeat it here. He observed as did Flagg a great number of artifacts strewn over the surface and that there were many small elevations which have probably since disappeared. What impressed him, as well as the others of those early days, was not only the charm and mystery of the mounds themselves but their pleasant location in the Great Plain and that this plain was not entirely a prairie but broken here and there by clumps of heavy vegetation and ponds of water.

It requires no stretch of imagination to those familiar with American archeology to catch the point of view of these early visitors to the Cahokia group. After reading their accounts carefully, it is not difficult for one, from the top of the great mound, to recon-

struct the past. One eliminates the factories, the macadam road and the cities. And having done this we will surrender the pen to Mr. Flagg,* since his account has been less frequently published than those of others.

"The view from the southern extremity of the mound, which is free from trees and underbrush, is extremely beautiful. Away to the south sweeps off the broad river-bottom, at this place about seven miles in width, its waving surface variegated by all the magnificant hues of the summer flora of the prairies. At intervals, from the deep herbage is flung back the flashing sheen of a silvery lake to the oblique sunlight; while dense groves of the crab-apple and other indigenous wild fruits are sprinkled about like islets in the verdant sea. To the left, at a distance of three or four miles, stretches away the long line of bluffs, now presenting a surface marked and rounded by groups of mounds, and now wooded to their summits, while a glimpse at times may be caught of the humble farmhouses at their base. On the right meanders the Cantine Creek, which gives the name to the group of mounds, betraying at intervals its bright surface through the belt of forest by which it is margined. In this direction, far away in blue distance, rising through the mist and forest, may be caught a glimpse of the spires and cupolas of the city, glancing gayly in the rich summer sun. The base of the mound is circled upon every side by lesser elevations of every form and at various distances. Of these, some lie in the heart of the extensive maize-fields, which constitute the farm of the proprietor of the principal mound, presenting a beautiful exhibition of light and shade, shrouded as they are in the dark, twinkling leaves. The most remarkable are two standing directly opposite the southern extremity of the principal one, at a distance of some hundred yards, in close proximity to each other and which never fail to arrest the eye. There are also several large square mounds covered with forest along the margin of the creek to the right, and groups are caught rising from the declivities of the distant bluffs.

"Upon the western side of Monk Mound, at a distance of several yards from the summit, is a well some eighty or ninety feet in depth; the water of which would be agreeable enough were not the presence of sulphur, in some of its modifications, so palpable. This well penetrates the heart of the mound, yet, from its depth, cannot reach lower than the level of the surrounding plain. I learned, upon inquiry, that when this well was excavated, several fragments of pottery, of decayed ears of corn, and other articles, were thrown up from a depth of sixty-five feet; proof incontestible of the artificial structure of the mound. The associations, when drinking the water of this well, united with its peculiar flavour, are not of the most exquisite character, when we reflect that the precious fluid has probably filtrated, part of it, at least, through the contents of a sepulchre."

Aside from the mounds the depressions or ponds and the village site are quite important. From our vantage point we note that while certain of the mounds are clustered together, others are at a considerable distance apart. In these level spots lying between the mounds is a village site. Indications of Indian habitation were most

*The Far West, Vol. I, pages 166, 167, 1838.

numerous northwest of Monks Mound, about the pyramid owned by Mr. Smith, 400 yards east and south across the fields to the line of timber. It is impossible at present writing to give the actual extent of the village. Although we spent two months at Cahokia with a large crew it can be truthfully affirmed that our observations are just begun.

The Village Site

Where we excavated at various points in the village site, we found disturbed ground at depths ranging from one to four feet. Northeast of the dominant mound the debris appears to be the thickest, yet all over the area south of the state highway pottery fragments, chips, and flint arrowheads may be found from the surface to a depth of one foot. More than a thousand broken artifacts and pottery were secured by us from our test pits. In our preliminary examination there were extensive areas of land which we were unable to test. These should be carefully inspected during the coming season and next year.

One of these, which we did not see, should be here noted. In the Twelfth Annual Report of the Bureau of American Ethnology pp. 133-134, Dr. Cyrus Thomas describes the work of McAdams and Patrick on the banks of the old channel of Canteen creek—the southern branch of Cahokia creek. He states:

"It is worthy of note that nearly all the relics found at the Cahokia group of mounds have been taken from the low ground between the mounds. The remarkable find of pottery, implements, and shells made by Mr. McAdams in the winter of 1881 was in the low land a short distance from the northeast corner of the great mound. The articles were nearly all taken from a square rod of ground. This has been to some extent Dr. Patrick's experience in making his fine collection of pottery.

"The real burial place of the builders of the Cahokia mounds probably is yet to be discovered.

"The bank of Cahokia creek during the occupation of the mounds was evidently more to the south than its present line along the eastern part of the group. The old bank is still plainly visible. The low land between this old bank and the creek is now covered with forest trees. All along this bank, which forms the edge of the plateau on which the mounds stand, are abundant evidences of occupation in remote times. In digging 2 or 3 feet at almost any point along this bank indications of fireplaces are found, with numerous river shells, broken pottery, and kitchen refuse. As all the arable ground about the mound has been in cultivation many years, it is quite possible that some of the burial places, which are usually quite shallow, have been destroyed, as pieces of human bones are very common in the plowed fields."

Since, as stated, barely sufficient has been done to make sure of the presence of a large village site, further comment on it at this time is unnecessary. Subsequently in this report we shall quote Dr. Rau upon pottery and agricultural implements found at Cahokia fifty years ago.

DESCRIPTION OF THE MOUNDS AND OF RECENT EXPLORATIONS

The best and most complete map of the Cahokia group I have observed is the result of a survey made by County Surveyor Hilgard under the direction of Dr. J. J. R. Patrick assisted by B. J. Van Court of O'Fallon, Ill., and Wm. J. Seever of St. Louis. The work was done about 1880 and the original map owned by the Missouri Historical Society was loaned us. We made a copy which is herewith reproduced (Fig. 1). The plot of the mounds presented in the 12th Annual Report of the Bureau of Ethnology (Plan VI.) (opposite page 134) apparently reproduces Hilgard's map.

A model was prepared for the Peabody Museum at Harvard by Mr. D. I. Bushnell, Jr. A small model has been made by Doctor George B. Higgins of St. Louis and left with the Ramey family. Doctor Higgins does not claim that his model is accurate, but it shows the location of the principal mounds

Reference to our map will indicate that the majority of the mounds are west, south or east of Monks Mound. There are a few on the north side of Cahokia Creek. The larger tumuli occupy the center of the group east and west, but not the center north and south. Probably the low lands lying along Cahokia Creek interfered with mound construction. Seven of the rectangular mounds or pyramids are almost in a straight line east and west. Today many of the mounds shown in the original map by Mr. Hilgard, also on Bushnell's model and Thomas' map, appear externally as ovals rather than pyramids. This is due to farming operations. It will therefore be necessary for us to compare and check up very carefully all descriptions by observers in the past with measurements and descriptions to be made in the future. Manifestly the survey of 1875 is accurate and if Mr. Hilgard or Mr. Patrick drew a certain mound as a pyramid and today it appears as an oval or oblong mound, it should be classified as a pyramid. The steep conical mounds do not seem to have been altered as much as the larger pyramids.

The Largest Mound. Monks or Cahokia.

This has for many years been called Monks Mound (Figs. 3, 4) because of the presence of the Trappists during a short period between 1808-1813. It would seem to the writer that we should call the entire group of tumuli the Cahokia group and that the larger

mounds should be named in honor of the many owners rather than numbered. Whether the largest mound should be called Cahokia or Monks can be determined later. Most persons refer to all of them as the Cahokia group, and to designate one mound as the Cahokia Mound seems rather confusing. For the present, or at least in this report, we shall refer to the largest one as Monks Mound.

It is much washed and weather-worn at the present time, and has lost a great deal of its original charm. In fact if one should compare the various views taken twenty or thirty years ago of the mound with a photograph of it today, one would scarcely imagine the two to represent the same structure.

The truncated pyramid effect was observed by all the early visitors. It is necessary to make use of their descriptions in order to reconstruct the mound as it was.

Professor Putnam was in close touch with Doctor Patrick and others and in the 12th Annual Report of the Peabody Museum he presents the following observations.

"*Cahokia Mound.* In company with several gentlemen from St. Louis, I had the good fortune in September last (1879) to visit the largest mound within the limits of the United States. * * * While there is not the slightest evidence that the Cahokias of the time of LaSalle were builders of this, or of other mounds in the vicinity, it is a gratification to be able to perpetuate the name of an extinct tribe of American Indians in connection with this monument of an unknown American Nation, rather than that of a religious order of foreign origin.

"Situated in the midst of a group of about sixty other mounds, of more than ordinary size, several in the vicinity being from 30 to 60 feet in height, and of various forms, Cahokia Mound, rising by four platforms, or terraces, to a height of about one hundred feet, and covering an area of over twelve acres, holds a relation to the other tumuli of the Mississippi Valley similar to that of the Great Pyramid of Egypt to the other monuments of the Valley of the Nile.

"I am glad to be able to state that Dr. J. J. R. Patrick, a careful and zealous archeologist, residing in the vicinity of this interesting monument has, with the assistance of other gentlemen, not only made a survey of the whole group of which Cahokia is the prominent figure, but has also prepared two accurate models of the mound itself; copies of which have been promised to the Museum.

"One of these models (Fig. 5) represents the mound as it now appears, with its once level platform and even slopes gullied, washed and worn away; and the other (Fig. 6) is in the form of a restoration, showing the mound as it probably existed before the plough of the white man had destroyed its even sides and hard platforms, and thus given nature a foothold for her destructive agencies. The projecting portion (A) from the apron (B) points nearly due south.

*Twelfth Annual Report, Peabody Museum of American Archeology, pages 470-475, 1880.

"Probably this immense tumulus was not erected primarily as a burial mound, though such may prove to be the case. From the present evidence it seems more likely that it was made in order to obtain an elevated site for some particular purpose; presumably an important public building. One fact, however, which I observed, indicated that a great length of time was occupied in its construction, and that its several level platforms may have been the sites of many lodges, which, possibly, may have been placed upon such artificial elevations in order to avoid the malaria of a district, the settlement of which in former, as in recent times, was likely due to the prolific and easily cultivated soil; or, more likely, for the purpose of protection from enemies. The fact to which I allude, is that everywhere in the gullies, and over the broken surface of the mound, mixed with the earth of which it is composed, are quantities of broken vessels of clay, flint chips, arrowheads, charcoal, bones of animals, etc., apparently the refuse of a numerous people; of course it is possible that these remains, so unlike the homogeneous structure of an ordinary mound, may be the simple refuse of numerous feasts that may have taken place on the mound at various times during its construction. The first interpretation, however, is as well borne out as any other from our present knowledge of this mound; the structure and object of which cannot be fully understood until a thorough examination has been made, and while such an examination is desirable, it is to be hoped that this important and imposing monument will never meet the fate which Col. Foster, under a false impression* due to a confusion of names and places, mourns as having already occurred.

"McAdams spent a great deal of time at the group and studied the largest mound in some detail which he describes in his volume, 'Records of Ancient Races in the Mississippi Valley. St. Louis, 1887.' "

McAdams gives a general account of the mounds in central and southern Illinois in his book. It is unfortunate he did not make more complete observations as his opportunities were unexcelled. The collections made by him are somewhat scattered, yet it may be possible, through some research, to identify considerable of the material.

His observation are:

"The form of the Cahokia Mound is a parallelogram, with straight sides, the longer of which are north and south. It is about one hundred feet in height.

"On the southern end, some 30 feet above the base, is a terrace or apron, containing near two acres of ground.

"On the western side, and some thirty feet above the first terrace, is a second one of somewhat less extent.

"The top of the mound is flat and divided into two parts, the northern end being some 4 or 5 feet higher than the southern portion. The summit contains about an acre and a half.**

"Near the middle of the first terrace, at the base of the mound, is a projecting point, apparently the remains of a graded pathway to ascend from the plain to the terrace. The west side of the mound below the second terrace is very irregular, and

*The destruction of "Big Mound" on the opposite side of the river, within the city limits of St. Louis, probably led Col. Foster into error.

**See Plate IV, Figs. 5 and 6, from Putnam's report, previously quoted.

forms projecting knobs, separated by deep ravines, probably the result of rain-storms; to the northwest corner of the base of the structure there seems to be a small mound attached, in exact imitation of the small mounds attached to the base of the pryamids of Egypt as well as those of Mexico.

"The remaining sides of the structure are quite straight and but little defaced by the hand of time.

"About the sides of the mound are still growing several forest trees, one of which is an elm several centuries old.

"As the size of the Cahokia Mound has been given variously we applied to Mr. B. J. VanCourt, a practical surveyor living in the vicinity, at O'Fallen, and whom we knew had made a regular survey of the mound. Mr. VanCourt sent us the following:

" 'In my survey I did not follow the irregularities of the mound, but made straight lines enclosing the base. The largest axis is from north to south and is 998 feet, the shortest from east to west is 721 feet. The height of the mound is 99 feet. The base of the structure covers 16 acres, 2 roods and 3 perches of ground.'

"The summit and lower terrace of the Cahokia Mound has been plowed a few times. Brackenridge who visited the mound in 1811, says that the monks used the lower terrace for a kitchen garden, and also had the summit of the structure sown in wheat. The great pyramid has not been materially changed, however, and doubtless presents the same outlines to-day as at the time of the discovery of this continent by Columbus.

"Since some doubts have been expressed as to the artificial origin of this structure we were much interested to ascertain what could be learned in this respect by examination. On the top of the pyramid are the remains of a house, said to have been commenced by the monks, but afterwards added to and finished as a comfortable residence for the family of a man named Hill, an enterprising settler who owned the mound and a large body of land adjoining. Beneath this house is a deep unwalled cellar. A section down the side of the cellar to the depth of ten feet is very plainly revealed a deposit of various kinds of earth without stratification. The principal part of this deposit was the black humus or mould, so common in the bottom and forming the principal soil, very sticky when wet and breaking into cubical blocks when dry. Here and there, as if thrown promiscuously among the black mould, is a bunch of yellow clay, or sand, or marly loess, these bunches being about such size as a man could easily carry.

"Similar sections can be seen up the old road made by Hill to ascend to his residence.

"On the second terrace is a well (He republishes Flagg's account of it).

"About midway, on the north side, or face of the pyramid, and elevated 25 or 30 feet above the base, in a small depression, stands a pine tree, singularly enough, since this tree is not found in the forests in this locality. There was a story rife among the early settlers that this tree stood at the mouth of an opening or gallery into the interior of the mounds. To ascertain the truth of this matter, Mr. Thomas Ramey, the present owner of the mound, commenced a tunnel at this tree and excavated about ninety (90) feet towards the centre of the mound. When fifteen feet from the entrance to the tunnel a piece of lead ore was discovered, but no other object of interest was found. The deposits penetrated by the tunnel are very plainly shown to be the same as seen in the cellar mentioned above."

Mr. Bushnell, as previously stated, gives us our best account of the group. His measurements of Monks Mound are north and south, 1,080 ft., east and west 710 ft., with a height of 100 ft. The Ramey family tells me that they have understood the height to be 104 ft. The differences in the dimensions are easily explainable. There is a long or gentle slope or "feather" edge at the base of the mound, on all sides. One observor might differ 30 to 50 ft. from another investigator as to where the mound actually began. A new survey of the entire group is scarcely necessary, but it would be well to remeasure Monks Mound.

A question arose some years ago with reference to whether Monks mound was built by man or a natural formation. None of the archeologists ever doubted the artificiality of the large mound, but the statement that it might be natural seems to have affected the legislature and that was one of the reasons why the bill to make a state park at Cahokia failed of passage. The evidences of Hill's well, previously cited, and Ramey tunnel, together with the presence of pottery fragments and bones which were apparent last fall in the gulley six or eight ft. in depth in the lower terrace, are sufficient to prove that the mound is the work of human hands. The brief statement that broken pottery was found at the depth of 60 or 65 ft. is significant.

Some light is shed on this question by another observer who talked with the first owner nearly eighty years ago:

"At this time it is the possession of the mechanic named Hill, who has built a home at the top, around which we saw abundance of Indian corn, pumpkins, tomatoes, etc., for the soil of which it consists is the rich black mould taken from the surface below which is extremely fertile. Mr. Hill laid the foundation of his dwelling upon an eminence he found on the summit of his elevated territory, and upon digging into it found large human bones, with Indian pottery, some axes and tomahawks, from whence it would appear that this mound not only contained a sepulchret at its base, but has been used for the same purpose in aftertimes at the summit." *

Until the mound is tunnelled or trenched, one can not draw positive conclusions as to the purpose of construction, but it is my opinion that it was a long time in the building and that it probably began as a repository for the dead. That is, certain burials were made, as in the case of the large mound of the Hopewell group, Ohio, and other small mounds added as burials were made. Finally

*Excursion through the slave States. G. W. Featherstonehaugh, F. R. S. London, 1844, pp. 264 to 272.

the structure became so large that the natives made it into a pyramid, added the upper terraces and used the top as a place of residence. This is mere opinion and may be not verified by exploration.

THE RAMEY MOUND

Across the state highway, a little southwest from the ranking mound, is a large pyramid over 27 ft. in height on the summit of which is the residence constructed by Mr. Thomas Ramey. Instead of numbering this mound, we gave it the name Ramey Mound. Mr. Bushnell gives the elevation as 25 ft. dimensions of base 200x180 ft. We did not measure this but Mr. Fred Ramey and his brother ran lines and state that the base of the mound is 425 feet square. On the summit it is 250 feet east and west and 225 feet north and south. Possibly Mr. Bushnell refers to the mound just west of the Ramey residence as that one corresponds more nearly with his measurements. Our headquarters were in the farm house on top of this structure. We looked it over carefully and believe that the mound covers interments.

The personal equation is a large factor in archeological researches. It will be impossible to give the reasons why we believe the Ramey Mound to contain many burials. It is merely a matter of opinion. It certainly should be explored.

THE KUNNEMANN MOUND

About half a mile directly north of Monks site, on the land of Mr. George Merrell is a large mound. Mr. Merrell's tenant, Mr. A. Kunnemann has resided on the tract for over twenty-five years and we named the structure for him. Originally the tumulus was about 400 feet diameter and conical—not a pyramid as has been recorded on one of the maps. Twenty years ago fifteen to sixteen feet of the summit was removed and a trench run in from the north side some 90 feet in order that earth to build a dyke along Canteen creek might be obtained. Thus the mound had been seriously damaged. We wished to test one of the larger structures, and as this one offered unusual facilities, we began work Sept. 16th. Witnesses present during the previous work were questioned and all agreed that the mound was conical or "pointed" as Mr. Kunnemann expressed it. The present diameter of the top is 75 by 56 feet. The sides are about twenty-five percent slope. Restoring this same

ratio of slope to the top would give fifteen to sixteen feet more elevation, as stated. We found the base near the center to be thirty-five feet below the present flattened summit. Therefore, the tumulus was originally not below 50, or more than 51 feet in altitude. This would make it the third mound of the whole group in height, but not in cubic contents.

Some two weeks were spent upon Kunnemann's Mound. When we stopped work we were near the center and had excavated some 80 feet beyond the point reached by the dyke builders (Figs. 11, 12). No skeletons were discovered, but in the earth were great quantities of flint chips, broken pottery, animal bones and other refuse scooped up by the natives when they took the earth from about their cabins to build the mound.

As we had before us a nearly straight wall thirty-five feet in height, we were able to study the mound construction.

It was found that the mound (that is, the portion we excavated) rested upon a heavy layer of clear sand. Test pits sunk in this sand indicated that it was natural, had not been deposited by man. The lowest part of the mound is ordinary mixed earth and not stratified. About eight feet above the sand, or base, is dark earth in which are many broken artifacts. Above this, some five or six feet of yellowish loam, then a rather distinct decayed vegetation layer running across the face of our fifty foot trench. This is rather thin and even; then several feet of darker soil, but not gumbo, and above this the heaviest layer of decayed vegetation, in some spots about half an inch in thickness. Yellow loam containing some sand extends fully ten feet above. In this and the layer below, the "dumps" or basketfuls of earth are noted. That is, natives carried the earth in loads varying from a trifle over a peck to a half bushel or more. Just below the summit is a four to five feet layer of heavy, compact gumbo (Fig. 2).

All these lines and strata are more or less even, that is level, indicating that the people did not first build a small conical mound and gradually increase the size. Apparently, they decided to construct a large tumulus, built up layers of somewhat different soil, and placed the heavy gumbo some distance from the apex.

After the work had progressed some days and when we were at a point north of the center, and where the mound was originally about forty-one feet high, we found a heavy layer of burned earth.

This was almost floor-like in character. It was followed for a distance of thirty-five feet east and west, but was considerably narrower north and south. In the northern edge of this floor, eighteen feet above the base and eight feet below the present summit, we uncovered a circular, altar-like burned basin. It is shown in Fig. 13. Half of this had been broken off, whether by the Indians or the dyke builders, we do not know. The latter state that they observed no burned basin. It was empty, but consisted of ordinary clay, hard burned. It was about a yard in diameter, ten or twelve inches deep and surrounded by a well defined, broad rim somewhat elevated. Extending in all directions beyond (save north) was the level, burned floor referred to. Why this altar should be nearly half-way above the base, we are unable to state. All the Ohio mound altars lie upon the base line.

When we had dug to near the center of the mound we observed a burned area extending most of the distance across the face of our wall. It was sometimes nearly two feet thick. There was also a light sand stratum, some twenty feet above the base line, which extended some thirty-eight feet east and west.

Near the center and twenty-seven feet from the base, Mr. Eldridge found the head of a frog effigy pipe and numerous fragments of fine pottery. Various large, flat shell beads were also discovered from time to time. Pottery fragments were secured by the hundreds.

Why no burials were found in the north half of Kunnemann's Mound, we do not know. Possibly they will be found in the southern or eastern portions of the structure. The mound should be completed, but as stated on page 8, we did not feel justified in continuing operations. Some fragments of human bones were mingled with the village-site debris, but they were not burials.

SMITH'S MOUND

It lies just back of Mr. Smith's hotel, a quarter mile east of Monks Mound. This is a pyramid with flattened summit. On the east side is an extensive platform, or elevation. While this to one's eye does not appear to be over five feet in altitude, yet on examination we found that burnt stone, pottery sherds and refuse extended to a depth of over seven feet. There was also a layer of burnt ear that that depth. Rising about 80 ft. above the platform

is the long pyramid owned by Mr. Smith and whose name we gave to it. The southern edge has been much disturbed, and measurements were not made by us. Mr. Smith kindly agreed to the removal of a large dance-pavilion located on the summit in order that we might run an 80 ft. trench through. We decided to wait until some future time, but we did make two large excavations in the platform.

No one seems to have excavated a terrace, or "apron" leading up to one of the larger mounds. This apron is 115 ft. E. and W. x 120 ft. N. and S. in extent and about 5 ft. high. The field notes are herewith condensed as follows:

Oct. 3rd, 1921. Began a long trench at the extreme eastern end of Smith's platform. Ran due west, keeping on the base line. This trench extended fifty-five feet. Fourteen men completed the trench in two days. After proceeding west for 35 ft. we sank a test pit 10 ft. 5 in. deep. Disturbed earth, charcoal and small pottery sherds were found at 7 ft. 3 ins. depth. At the 55 ft. stake another 10 ft. deep pit was excavated and the bottom of disturbed area reached at 7 ft. 8 ins. Pottery and animal bones found. During the course of excavation half a bushel of broken artifacts were found, some of the pottery being of superior workmanship. What was more interesting, we discovered lumps of burnt clay containing impressions of the reeds or rushes of which the cabins were built.

Nearer the base of Smith's pyramid by means of team and scraper we excavated a pit some thirty feet long and eight feet deep. The same formation noted in the hand-dug trench was apparent. This was a hard burned layer, or floor, near the base line.

Dr. Higgins dug a small mushroom cellar in the north end of Smith's Mound. He secured a number of artifacts. Whether it is a burial structure or merely for houses or ceremonial lodges, can not be determined until a wide trench is carried through the structure.

THE EDWARDS' MOUNDS

About a quarter of a mile directly east from Smith's Mound are four small tumuli north of the Collinsville road and on the land of Mr. Edwards. The largest of these is not over 9 ft. in height. We explored the two mounds lying about half way between the turnpike and Canteen creek. In the one to the west was found the skeleton shown in Fig. 14. This was at a depth of 4 ft. and was extended and all the bones present and in position. There were some flint chips

and two or three flint knives near the head, also some large fragments of broken pottery. The base of the mound was about a foot below the present surface. A trench some 60 ft. in length and 20 ft. wide was run through the structure. The soil was filled with broken pottery.

East of this, distant about 400 ft. is another mound about 7 ft. in height. We dug a trench through the center and sunk eight or ten test pits, finding no burials but discovered scales of copper on the base line. About one-third of this mound remains to be explored next year.

THE JESSE RAMEY MOUND

This is about 20 ft. in height at the present time, the base diameter some 300 ft. It is the second mound directly south of Monks. It is not quite clear whether this was originally an oblong mound or of the pyramid type since it has been cultivated for many years. Some twenty-five men were employed in the work and a trench 65 ft. in length was extended from near the base on the south side to a line some distance from the center. This trench was excavated to an average depth of 10 ft. Then test pits were sunk and post augers used. Five or 6 ft. farther down (a total depth of 14 to 16 ft.) we came upon rather soft, dark earth quite different from the clay and gumbo of which most of the mounds were composed. It resembled the earth found about burials in the several mounds of the Hopewell group. There were a few scales of copper, and some fragments of highly finished pottery. The pottery was above the average found on the surface or in the village site. That is, the fragments recovered indicate the finer pottery such as accompanies burials.

This mound was trenched late in October and being the end of our season we filled the excavation. While it can not be confidently confirmed, yet it is the opinion of the author that the Jesse Ramey Mound is a burial structure and should be thoroughly explored.

OTHER MOUNDS TESTED

Between the Pennsylvania and Baltimore and Ohio railroad tracks is a little triangle of land over which there was a dispute as to ownership. Mr. Cole now owns it. Here was a large mound of which the Baltimore & Ohio construction crew removed two-thirds. A stone pipe, said to represent an eagle and some 20 inches in length, was found in this mound, in the late 50's. We dug eight or ten test pits in the structure but found very little. We do not recommend exploration.

On the south side of the Collinsville road are the lands of Mr. Tippett, Mr. Cole, and Mr. Wells. Two mounds were tested superficially. Both are composed of gumbo and while there was much broken pottery, no burials were encountered.

CONCLUSIONS ON THE EXCAVATIONS

Although we employed a very large crew, we were a short time at Cahokia. The area of Indian occupation covers at least 1,000 acres. It will therefore be observed that it would be impossible for any corps of explorers to do work which might be considered thorough in less than five or six seasons. It is the writer's opinion that about ten years are necessary to a thorough understanding of the Cahokia culture.

Our purpose was to test some of the mounds both large and small and first learn the construction and also ascertain whether burials were general in the mounds. With the exception of the smaller Edwards Mound, none of them were thoroughly explored by us. Technically, we can not affirm that the others are not burial mounds, since they were not dug out entirely. Briefly, our limited explorations would indicate that excepting the Jesse Ramey Mound, and Kunnemann Mound, the other mounds examined were house sites. The Kunnemann Mound is more or less of a mystery since being cone shape there would not be room for more than one very small lodge on the summit. If there are burials, they remain in the unexplored two-thirds.

Mr. W. J. Seever, who was present during McAdams' excavations and dug somewhat himself, thinks that the views of Putnam and others correct to the effect that there are one or two cemeteries which have not been found and that these are in addition to presumable burials in the larger mounds. We hope to do more thorough work in the seasons of 1922 and 1923. It is proposed to put several men testing the plain in various directions for the cemetery and concentrate another body of workers either on Smith's Mound or one of the flat pyramids to the west or south of Monks.

The excavations indicate that the village was well established and populous at the time the mounds were constructed. This is proved by the great quantities of broken artifacts, which lay about the ground near the houses and were scooped up with the earth.

EXPLORATION OF THE VILLAGE SITE

About 600 ft. north-east of Monks Mound, McAdams is said to have found the pottery and skeletons. Both of his sons, as well as Mr. Seever and one or two other witnesses, visited the scene of our

operations and indicated where Mr. McAdams had dug. On page 57 of his volume he says that he secured 100 urns, pots or bottles from the cemetery near the base of Monks Mound. Some of these were painted. In plates 1 and 2 in his pamphlet entitled "Antiquities of Cahokia or Monk's Mound" (Edwardsville, 1883) he illustrates a number of these and other objects from the Cahokia village site.

He says "there were also the paint pots and dishes holding the colors, together with the little bone paddle for mixing, and other implements of the aboriginal artist." It is unfortunate that such an exhibit could not have been kept intact and preserved in the State Museum.

For a number of days we excavated at the McAdams site and also for a radius of 300 yds. east and north-east. Some of the trenches were 50 ft. in length. Broken human skeletons were found scattered here and there, probably where Mr. McAdams had made finds. We discovered one flex burial accompanied by half of a bowl. There was another partial burial a few feet to the west. The ground about it was much disturbed. Above both burials was a layer of hard baked, red earth some 2 ft. from the surface. The disturbed earth extended from 3 to as much as 5 ft. in depth. During the course of operations in the village site, numbers of fragments of galena, portions of Busycon shells, arrowheads, hammerstones and other material in common use among the Indians were discovered.

When excavating by means of test pits, with a view of studying the character and extent of the village site, we found a number of level, clay burned floors varying from 20 to 30 ft. in diameter. Three or four of these had been disturbed by the plow, others somewhat deeper were well preserved. One near the shore of the lake, a quarter of a mile south of Monks Mound, was composed of ordinary clay, burned quite hard and some 20x25 ft. in diameter. Whether these are the floors of wigwams or houses, we do not know. They seem rather small for dance floors or assembly places. There may be many more of them revealed by future explorations. No more refuse occurred on these floors than elsewhere on the village site.

Just north of Smith's Mound are three mounds which have been cultivated until the edges overlap. About the bases of these the village site material seems to be most numerous. We are of the opinion that this part of the site should be quite thoroughly examined, since we dug up several pottery heads of birds, etc. all of exceptional form and finish.

UTENSILS AND IMPLEMENTS FROM CAHOKIA

It will be necessary to visit several museums and also inspect some of the larger private collections within one-hundred miles of Cahokia in order to make studies and comparisons of the various artifacts found at this famous place. This will require considerable time but it will be possible to identify a great deal of Cahokia material. From the collection in the Missouri Historical Society and the large exhibits owned by E. W. Payne, Esq., of Springfield, Doctor H. M. Whelpley, and Doctor George B. Higgins of St. Louis, the Ramey heirs, William Waters, Esq., of Godfrey, Illinois, and one or two persons in Edwardsville, an idea of prevailing Cahokia forms may be obtained. These were inspected by the writer somewhat superficially, yet it can be stated that there are in the chipped implements (if not in the ceramic art) what might be called the Cahokia types. That is, the Cahokia people lived for such a length of time that they established their own localized art. The details of this can be worked out later when all collections are more carefully studied.

On the objects or artifacts themselves I find little or nothing has been published save by Doctor Charles Rau, formerly Curator in the Smithsonian Institution. He presented a study on pottery and other observations on agricultural flint implements in the Smithsonian reports. The descriptions follow herewith.

"That the fabrication of earthenware was once carried to a great extent among the Indians, is shown by the great number of sherds which lie scattered over the sites of their former villages and on their camping places; but they are, perhaps, nowhere in this country more numerous than in the "American Bottom," a strip of land which extends about one hundred miles along the Mississippi, in Illinois, and is bounded by the present bank of that river and its former eastern confine, indicated by a range of picturesque wooded hills and ridges, commonly called the "Bluffs." This bottom, which is on an average six miles wide and very fertile, was formerly the seat of a numerous indigenous population, and abounds in tumular works, cemeteries, and other memorials of the subdued race. Among the lesser relics left by the former occupants may be counted the remnants of broken vessels, which occur very abundantly in various places of this region. These fragments are, however, mostly small; and, according to my experience, entire vessels are not found on the surface, but frequently in the ancient mounds and cemeteries, where they have been deposited with the dead as receptacles for food, to serve on their journey to the happy land of spirits.

"About six years ago, while living in the west, I was much gratified by the discovery of a place in the American Bottom where the manufacture of earthenware was evidently carried on by the Indians. The locality to which I allude is the left bank

of the Cahokia creek,* at the northern extremity of Illinoistown, opposite St. Louis. At the point just mentioned the bank of the creek is somewhat high and steep, leaving only a small space for a path along the water. When I passed there for the first time, I noticed, scattered over the slope or protruding from the ground, a great many pieces of pottery of much larger size than I had ever seen before, some being of the size of a man's hand, and others considerablely larger; and, upon examination, I found that they consisted of a grayish clay mixed with pounded shells. A great number of old shells of the *unio*, a bivalve which inhabits the creek, were lying about, and their position induced me to believe that they had been brought there by human agency rather than by the overflowing of the creek. My curiosity being excited, I continued my investigation, and discovered at the upper part of the bank an old fosse, or digging, of some length and depth, and overgrown with stramonium or jimson weed; and upon entering this excavation, I saw near its bottom a layer of clay, identical in appearance with that which composed the fragments of pottery. The excavation had unmistakably been dug for the purpose of obtaining the clay, and I became now convinced beyond doubt that the fabrication of earthen vessels had been carried on by the aborigines at this very spot. All the requisites for manufacturing vessels were on hand; the layer of clay furnished the chief ingredient, and the creek not only supplied the water for moistening the clay, but harbored also the mollusks whose valves were used in tempering it. Wood abounded in the neighborhood. All these facts being ascertained, it was easy to account for the occurrence of the large fragments. Whenever pottery is made, some of the articles will crack during the process of burning, and this will happen more frequently when the method employed in that operation is of a rude and primitive character, as it doubtless was in the present case. The sherds found at this place may, therefore, with safety be considered as the remnants of vessels that were spoiled while in the fire, and thrown aside as objects unfit for use.

"I did not succeed in finding the traces of a kiln or fireplace, and it is probable that the vessels were merely baked in an open fire, of which all vestiges have been swept away long ago. The occurrence of the broken pottery was confined to a comparatively small area along the bank, a space not exceeding fifty paces in length, as far as I can recollect. They were most numerous in the proximity of the old digging, and at that place quite a number of them were taken out of the creek into which they had fallen from the bank. Farther up the creek I saw another excavation in the bank, of much smaller dimensions, and likewise dug for obtaining clay. Among the shells and sherds I noticed many flints which had obviously been fashioned to serve as cutting implements; they were perhaps, used in tracing the ornamental lines on the vessels or in smoothing their surfaces.

"I did not find a single complete vessel at this place, but a great variety of fragments, the shape of which enabled me to determine the outline of the utensils of which they originally formed parts. This was not a very difficult matter, especially in cases when portions of the rim remained. The rim, it will be seen, is formed into a lip and turned over, in order to facilitate suspension; sometimes, however, it is cut off abruptly. Some of the vessels—more especially the smaller ones—were provided with ears, others had the outer rim set with conical projections or studs, both for

*This creek runs in a southwardly direction through Madison county and a part of St. Clair county, and empties into the Mississippi, four miles below St. Louis, near the old French village of Cahokia.

convenience and ornament; and a few of the fragments exhibit very neatly indented or notched rims. In size these vessels varied considerably; some measured only a few inches through the middle, while the largest ones, to judge from the curvature of the rims, must have exceeded *two feet in diameter*. The bottom of the vessels mostly seems to have been rounded or convex. I found not a single flat bottom-piece. This, however, may be merely accidental, considering that flat-bottomed vessels were made by the Indians. The appearance of the fragments indicates that the earthenware was originally tolerably well burned, and the fracture exhibits in many instances a reddish color. But, as the art of glazing was unknown to the manufacturers, it is no wonder that the sherds, after having been imbedded for many years in the humid ground, or exposed to rain and the alternate action of a burning sun and a severe cold, are now somewhat brittle and fragile; yet, even when new, this aboriginal earthenware must have been much inferior in compactness and hardness to the ordinary kind of European or American crockery.

"The thickness of the fragments varies from one-eighth to three-eighths of an inch, according to the size of the vessels, the largest being also the strongest in material. But in each piece the thickness is uniform in a remarkable degree; the rims are perfectly circular, and the general regularity displayed in the workmanship of these vessels renders it almost difficult to believe that the manufacturers were unacquainted with the use of the potter's wheel. Such, however, was the case. I have already mentioned that the clay used in the fabrication of this earthenware is mixed with coarsely pulverized unio-shells from the creek; only a few of the smaller bowls or vases seem to consist of pure clay. The vessels were covered on the outside, and some even on both sides, with a thick coating of paint, either of a black, dark brown, or beautiful red color, and in some fragments the latter still retains its original brightness. Only *one* color, however, was used in the painting of each article. It is evident that the coloring preceded the process of baking, and the surfaces thus coated are smooth and shining, the paint replacing to a certain extent the enamel produced by glazing."*

Doctor Rau comments as follows on "A deposit of Agricultural Flint Implements in Southern Illinois:"

"I was, therefore, much interested in the recent discovery of a large *deposit* of such implements at East St. Louis, (formerly Illinoistown), in St. Clair county, Illinois, a place situated directly opposite the city of St. Louis, in the so-called "American Bottom," which forms a fertile plain extending for a considerable distance along the Mississippi shore in Illinois. This region, I must state, is very rich in Indian remains of various descriptions,** but particularly interesting on account of numerous artificial mounds, among which the celebrated truncated pyramid called Cahokia Mound, or Monk's Mound, is by far the most conspicuous, reminding the beholder of those gigantic structures in the valley of the Nile, which the rulers of Egypt have left to posterity as tokens of their power and their pride.

"The particulars of the discovery to which I alluded were communicated to me by Dr. John J. R. Patrick, of Belleville, Illinois, a gentleman to whom I am greatly indebted for long-continued co-operation in my pursuits relative to the subject of

*I possess a small food vase of this shape, which was taken out of an old Indian grave on the "Bluffs," near French village, six or seven miles east of Illinoistown. It was, perhaps, made at the very place which I have described.

**Smithsonian Report, 1866, pp. 346 to 350.

American antiquities. As soon as Dr. Patrick heard of the discovery he hastened to East St. Louis, for the purpose of ascertaining on the spot all details concerning the occurrence of those flint tools; and in order to obtain still more minute information, he afterwards repeatedly revisited the place of discovery which is about 14 miles distant from Belleville, and can be reached after a short ride, the latter place being connected by railroad with East St. Louis. The removal of ground in extending a street disclosed the existence of the deposit, and Dr. Patrick derived all facts concerning it character from Mr. Sullivan, the contractor of the street work, who was present when the tools were exhumed, and therefore can be considered as a reliable authority. The results of my informant's inquiries, communicated in various letters addressed to me, are contained in the following account:

"In the early part of December, 1868, some laborers, while engaged in grading an extension of Sixth street in East St. Louis, came upon a deposit of Indian relics, consisting of flint tools, all of the hoe and shovel type, and of small fossil marine shells, partly pierced, and in quantity about equal to the contents of a bushel. Close by were found several boulders of flint and greenstone, weighing from 15 to 30 pounds each, and many fragments of flint. The soil in the immediate neighborhood is composed of black loam, overlying a stratum of a sandy character, and the deposit which occurred in the latter, was covered with from 18 to 24 inches of the black earth, bearing a luxuriant turf on its surface. According to the contractor's statement, the flint tools, the shells, and the boulders were deposited in three separate holes dug out in the sand, but not more than a food apart from each other, and placed like the corners of a triangle. To use his language, the implements formed a "nest" by themselves, and so did the shells, and likewise the boulders. The flint tools, however, instead of being packed close together, like the shells and the boulders, were arranged with some regularity, overlapping each other or standing edgewise, and covering a circular space. The whole deposit did not extend more than seven or eight feet on either side. The contractor neglected to count the implements, but he thinks there were from 70 to 75 in all; some 50 hoes and about 20 shovels. No other stone articles, such as arrow and spear-heads, tomahawks, etc., had been deposited with the agricultural implements. The latter were soon taken away by persons from the place, attracted by the novelty of the occurrence, and it is to be regretted that many, if not most of them, have fallen into the hands of individuals who are unable to appreciate their value. But this is usually the case when discoveries of similar character are made. Dr. Patrick examined upwards of 20 of the flint implements, and found that none of them had been used, as they had not received the slightest polish on the cutting edge.

"The place of discovery lies about a mile and a half, or still further, from the Mississippi, on elevated ground, and above ordinary high-water mark; but formerly before the bed of the river was narrowed by the dike connecting the Illinois shore with Bloody Island, the distance cannot have been more than half a mile. The spot is situated nearly midway between two mounds, half a mile apart from each other. One of them was formerly used as a graveyard by the French of the neighborhood, and the other serves as the substructure for a dwelling-house.

"Several of the agricultural implements found at East St. Louis are now in my possession. Their material is a yellowish-brown variety of the flint to which I already referred. In shape they correspond with the tools of the same class previously described by me; most of the shovels, however, instead of having the end opposite

the cutting part worked into a rounded edge, terminate in a more or less acute angle. The edges of all are chipped with the utmost regularity, and exhibit not the slightest wear, which proves that the implements were in a perfectly new condition when buried in the ground.*

"The fossil shells of marine origin are all small univalves, and belong almost entirely to the genus *Melampus*. Of nearly 300 specimens sent to me by Dr. Patrick, 19 only represent other genera, namely, *Columbella*, *Marginella*, *Conus*, and *Bulla*. All have a decayed and chalky appearance. They were probably obtained in the neighborhood, and obviously destined for ornamental purposes. This may be inferred from the fact that a number of the *Melampus* shells are pierced with one hole in the lower part, which was sufficient for stringing them, as the connecting thread could easily be passed through the natural aperture of the shell. On close examination, I found that these shells had been reduced, by grinding, to greater thinness at the place of perforation, in order to facilitate the process of piercing.

"The boulders, which formed a part of the deposit, were probably designated for the manufacture of implements. A piece of one of the boulders was sent to me for examination. It is a compact diorite, the material of which many ground articles of the North American Indians, such as tomahawks, chisels, pestles, &c., are made."**

NOTES UPON A COLLECTION SECURED FROM THE SURFACE

The Messrs. Ramey have accumulated more than 1,200 various objects found on the surface of the village site and the mounds the past thirty years. Omitting detailed descriptions, considerable can be learned from inspecting material found within a distance of one-half mile from Monks mound. In the chipped objects the triangular arrow point predominates. The drills, or perforators, are very slender and rather short. There are not many scrapers. There are over eight-hundred flint objects in the collection and while these have not been accurately divided, it is safe to assume that nearly 80% are of the peculiar Cahokia triangular form. There are a number of discoidals or bicaves and one fine disc composed of rose quartz. Several of the more interesting objects were photographed and are presented in Figs. 39 to 46. Attention is called to the sandstone tablet about 3⅜ inches in diameter on which a peculiar lattice-like design has been carved (Fig. 44). There are several effigies in pottery. The Cahokia people frequently made a little base, slightly curved, of clay, adding to same the head of a bird. These should not be confused with handles to pottery. There is an excellent example of this in the Ramey collection. It is painted red on the back and is shown in Fig. 37.

*Some years ago I discovered near East St. Louis the traces of an Indian pottery, described in the Smithsonian report for 1866.

**Smithsonian Report, 1868, pp. 402, 404.

Mr. James Ramey found a cache of several rough, notched hoes and spades all composed of limestone. Among them was a rough axe 10¾ ins. long, and nearly 5 ins. in width. There was also a large, flat stone which was covered with various grooves and depressions due to grinding other stones upon its surface, and a few hammer-stones. These have been carefully preserved and probably are the working tools of some aboriginal lapidary.

There are a few specimens of hematite in the collection and a remarkable bone awl, or perforator, made from the bill of some large bird (Fig. 34). It is about 3 ins. in length, carefully hollowed out and perforated. Certain peculiar forms in flint occur, such as the square, or angular, knife-scraper type.

The Ramey collection would indicate the correctness of previous observations to the effect that fixed types have developed at Cahokia.

THE POTTERY FROM CAHOKIA

We confine our brief description to fragmentary pottery, since we have not yet positively identified the perfect vessels and bowls found by McAdams and others. The fragments indicate that black, brown, red and combination of red and white are the favorite colors employed by the pottery maker. Figs. 15 to 32 present a number of fragments. The handles are quite interesting, some of them portraying the forearm and hand, the fingers usually clenched against the palm (Fig. 15). Other handles are round and pointed. The third form of handle, shown in Fig. 17, is sharply grooved on the upper surface and rounded on the lower.

Eliminating the common bowls and pottery which appear to be of the same forms as elsewhere in the Mississippi valley, the distinctive Cahokia types are shown in the figures. The large fragment Fig. 20 is a most favored design and also occurs farther south. Figs. 16 and 18 are characteristically Cahokia. Both are in red and both contain small, depressed squares. In these may have been inserted thin squares of shell. Of this we are not certain.

Mr. W. E. Myer, who is familiar with pottery from the south and middle Mississippi valley, examined the Cahokia fragments and concurs in the opinion that they indicate not only a highly developed ceramic art but specialized art, that the people had developed certain designs and motifs which do not occur outside of the Cahokia

area. It is too soon for us to form positive conclusions and these few observations are based upon a hasty examination of some hundreds of fragments.

When perfect vessels are discovered with burials in the cemetery or in the mounds, we shall be able then to present proper classification and study of the ceramic art of the Cahokia people.

CACHES AT CAHOKIA

A number of caches have been discovered from time to time, one with several bicaves or discoidal stones was found by a tenant and is now in the possession of Mr. Payne. Another was composed of unusually large *Busycon* sea shells. Two or three of these are in the collection at Edwardsville. One of Mr. Merrell's tenants last spring discovered several large agricultural implements compactly placed together near the surface. A large quantity, said to exceed a bushel, of the black, perforated shell beads ½ to 1½ inches in diameter were found with some burials in the bluffs a few miles directly east of the largest mound.

There is a low mound on Mr. Merrell's land some 300 yds. due west from Kunnemann's sites. At the present time this is not over one or two ft. in elevation. Mr. Seever informs me that large numbers of unfinished celts, many of them of considerable size, were here discovered and that he secured and distributed something like 100 of these objects the past twenty-five years. The fields have been searched by persons desiring specimens for nearly one-hundred years and thousands of objects have been found and carried away. One of the most interesting of the fixed types is the so-called Cahokia type of arrowhead, the name having been given by Doctor H. M. Whelpley. I present several of them in Fig. 33 from Doctor George B. Higgins' collection. Not many were found by us as we spent very little time in surface hunting. The characteristic feature is the notch in the base. This occurs in hundreds of specimens of all practically the same form.

USE OF COPPER AT CAHOKIA

The only detailed reference to copper from the Cahokia region was written by Doctor Howland many years ago. This has never been reprinted and should be inserted here.*

*From Bulletin of the Buffalo Society of Natural Sciences. Recent Archeological Discoveries in the American Bottom, by Henry R. Howland. March 2, 1877.

"Prior to the destruction of the St. Louis "Big Mound," in 1870, no articles of copper had been found in the vicinity; in leveling that mound two "spoon-shaped" copper implements were discovered, and in the possession of Dr. J. J. R. Patrick, of Belleville, Ill., is a nugget of native copper, which was found in a large mound at East St. Louis. The mound from which the articles now under consideration were taken was one of that second group of the American Bottom system to which I have alluded. Some twelve miles north of East St. Louis, a sluggish creek or slough with high banks, called Long Lake, joins Cahokia Creek, and on its banks, near the point of junction, stands a group of some thirteen or fourteen mounds, circled around a square temple mound of moderate height. At the western border of this group, and close to Mitchell Station, stood originally three conical mounds of considerable size, which were first cut into some years since in laying the tracks of the Chicago and Alton Railroad. On the twentieth of January, 1876, acting upon a chance intimation in a St. Louis morning paper, I visited this group, and found that the largest of these three mounds was being removed to furnish material for building a road dike across Long Lake, replacing an old bridge. The work was already far advanced, but in its progress some singular discoveries had been made. The mound was originally about twenty-seven feet high, and measured one hundred and twenty feet in diameter at the base, but the various assaults which from time to time had been made upon it for similar purposes had materially altered its proportions, the surface workings having reduced its height some ten feet, though I could not learn that in these early openings anything of especial interest had been discovered.

"During the present excavations, however, the workmen found, at a height of four or five feet above the base of the mound, a deposit of human bones from six to eight feet in width, and averaging some eight inches in thickness, which stretched across the mound from east to west as though the remains had been gathered together and buried in a trench. On this level, scattered about within an area of six or eight feet square, and perhaps twenty feet from the south-easterly side of the mound, were discovered a number of valuable relics, together with a large quantity of matting in which many of them had been enveloped. The archaeological zeal of the Celtic mind was, however, not adequate to the preservation of this matting, and, unfortunately, most of it, together with the bones, had been carted off and re-interred in the ditch. I was able to secure several small fragments, which show a coarse, vegetable cane-like fibre, simply woven without twisting, the flat strands measuring about one-eighth of an inch in width.

"Among the many curious articles carefully wrapped in these mattings, and here buried, were found a number of small tortoise shells formed of copper, which, being unique, are worthy of special attention. Of these I obtained three specimens, the rest having been scattered.

"They are made of beaten copper scarcely more than one sixty-fourth of an inch thickness, the larger and more perfect one measuring two and one-eighth inches in length and 13-16 inches in height. Their shape is remarkably true and perfect, showing a central ridge from end to end, produced by pressure from the under surface. A narrow flange or rim, about 5½12 inch in width, is neatly turned at the base, and over the entire outer surface the curious markings peculiar to the tortoise shell are carefully produced by indentation—the entire workmanship evincing a delicate skill, of which we have never before found traces in any discovered remains of the arts of the

the Mound Builders. Each of these tortoise shells would seem to have originally been covered with several wrappings of a very singular character, and one still adheres to its original envelope, presenting a peculiar mummified appearance. Closely fitting over the outer surface of the copper shell is, first, a woven cloth of a vegetable fibre, similar in its general character to the outer matting above described, but of a stronger and better preserved fibre, apparently more like that which forms the woven coating of the Davenport axes.* This is covered in turn with a softer, finer fabric, now of a dark-brown color, formed of twisted strands, laid or matted closely together, though apparently not woven. The material of which these strands are formed proves, under microscopic examination, to be animal hair. This fact is of singular interest, as it is believed that this is the only instance in which any such fabric has been discovered in connection with relics of the mound builders. A careful examination would seem to show the material to be rabbit's hair, in a perfect state of preservation, though none but short hairs are found and most of these are without either tip or base, though occasionally, as shown in the plate, the tips are found, as also the parts towards the base of the hairs, showing several rows of cells.

"Overlying this singular fabric and adhering quite closely to it is a dark colored layer, which under the microscope is shown to consist of a membraneous substance with numerous pores and distinct cellular structure (nuclei not visible), and would seem unquestionably to be an animal cuticle, a conclusion which is confirmed by the opinion of the eminent botanist Sir Josep Hooker, who has examined the specimen. The pores are apparently gland openings, and the dark line shows a rent in the cuticle.

"This layer seems also very carefully and smoothly shaped, and is covered in turn with a final coating of small dark iridescent scales which probably owe their color to carbonization, as they show in the spectroscope traces of carbon. They appear however, on microscopic examination to be the remains of a layer of non-striated muscular fibre with connecting tissue, possibly from the intestines or bladder of some animal, this having originally served as an outer wrapping for these carefully treasured objects.

"Next in point of interest are two specimens (also believed to be unique in their character) of the lower jaw of the deer in both of which the forward part or that containing the teeth is ensaced in a thin covering of copper, which extends over the teeth, and over this copper sheathing are the same mummy-like wrappings which I have already described, though in one specimen the coarse vegetable fibre-cloth is lacking, and the case is primarily formed of the fine, soft, matted fabric of animal hair which in the others forms the second coating. In both, these wrappings are skillfully made to form a close-fitting and symmetrical case. They measure about two and a half inches from the end of the teeth to the point where the bone is cut off, and the copper sheathing reaches to within half an inch of this, while a hole is bored from side to side through the back of each jaw, as though the articles had been worn suspended from the neck for totems or as badges of authority.

"Three curious implements which were found were in the shape of two flat circular discs of uniform size, 2 3-16 inches in diameter, united by a central shaft, and in general appearance not unlike a narrow spool or thread reel, each having a circular hole through the center ¾ inch in diameter. These were made of bone, and having

*Prof. Asa Gray, on a hurried examination of this matting, expresses the opinion that it is made of a bark fibre (not bast), possibly from the fibrous bark of Thuja.

been polished very smoothly were neatly coated with beaten copper. This is also true of a slender pointed rod of wood 8¾ inches long, which was skillfully covered with a thin copper sheathing extending over its entire length. A number of pieces of very thin wood (of which I secured eight specimens), were also found, which were about 3 inches long, probably about 2¾ inches across at the widest point and very carefully shaped, being rounded at the base and running to a point at the top where they were perforated for convenience in stringing or fastening them together. The striking peculiarity of these thin plates of wood, as of the other objects just mentioned, is that they show evidence of having once been coated with thin copper, many fragments of which still adhere to their surfaces. It is as difficult to conjecture the use of these articles as of a series of five flat copper rods, measuring 3⅛ inches in length and pointed at one end, placed edge to edge and fastened together with flat bands probably of the same material.

"Close at hand were one or two rude weapons of stone. Of one a fragment only was preserved, the other was a double-pointed spear head, a foot long, made of light-colored chert and precisely similar to those made by the North American Indians. With them was found a bundle of eight copper rods or needles from fourteen to eighteen inches in length, all in one bundle, wrapped together with matting. In addition to these, several awls and needles of various sizes made of bone were discovered, and with them a considerable quantity of beads made from the column of Busycon shells; two of those which I obtained measure respectively 2 1-8 and 4 inches in length, are slightly curved in shape and perforated from end to end. Not less curious is a necklace or circlet of twenty flat crescent-shaped ornaments of shell, each some three inches long and pierced at one end for the cord or thong which fastened them together.

"A day or two later, in digging on the northwest side of the mound, the workmen found near its base a mass of bones indicating another trench burial; but the only relics found with these remains were numerous sea shells of the species *Busycon perversum*, which must have been brought from the Gulf of Mexico, concerning which it is worthy of note that the crowns or tops of the shells are missing, having apparently been cut off in each instance at about the same angle, indicating that one part or the the other was made to serve some useful purpose in the economy of this strange people. In one very large specimen which I secured, the whorl or column of the shell had been cut away and the edges smoothly ground, forming a scoop-shaped implement about a foot in length."

CONCLUSIONS

No definite observations as to age, cultures, or people can be offered the reader at this time. Our work is but begun. However, it seems to be generally accepted by all observers that Cahokia is strictly pre-historic, since later Indians seem to know nothing concerning its builders.

When Marquette, LaSalle or Hennepin visited the region, they certainly would have stopped at so large a settlement as Cahokia had it then been occupied. That La Salle and Hennepin went to the Illinois villages, more than a hundred miles north-east seems to indicate that Cahokia in 1670 to 1680 was uninhabited. Dr. J. Owen Dorsey made a special study of Siouan tribes. In the Third Annual Report of the Bureau of Ethnology (Washington, 1884), he refers to a tradition that the Omahas once dwelt at a place near the present city of St. Louis. Also, that there was a "high mountain" on this peninsula. Mr. Gerard Fowke has given the subject considerable attention and published in Bulletin Thirty-Seven of the Bureau of American Ethnology (pp. 6 and 7) his observations which are as follows:

"The continuous and extensive changes of channel in the Missouri river, and the Mississippi below their junction deprive us of any certainty as to the location of the "peninsula" referred to in the Siouan legend. The narrators naturally would have applied the name "Missouri" to the whole river; that is to say, they would have regarded what we now call the Missouri as the principal stream, because they lived on it, and the Mississippi above the junction as a tributary. So we may not have to go to "The northern part of Saint Louis county" to find the place the tradition calls for.

"There is strong evidence that within a comparatively recent period the stream crossed abruptly from the Missouri to the Illinois bluffs then back to the Missouri side, in a space of a few miles above and below the present levee. Horseshoe and Pittsburg lakes are remains of this former channel. The mounds of the Cahokia group correspond in form and situation with mounds which formerly existed on the site of Saint Louis, and they are not at all of the same type as those nearest them in Illinois—an indication that when built they were all on the western side of the Mississippi, or according to aboriginal ideas, of the Missouri, river. Thus it is quite probable, providing we admit the essential truth of the Omaha tradition, that this is the "peninsula" to which reference is made, and that in the term "high mountain" we find the linguistic successor of "high mound"—in other words, the towering artificial structure called the Great Cahokia Mound. There is no other locality near the mouth of the Missouri which accords with the description given by Dorsey, certainly no "high mountain," so it is safe to assume that the Siouan tribes were settled for a time on an extensive bottom in front of the present city, with the Mississippi river on the north,

east, and south. They may have constructed the small burial mounds found in the county and westward; and when, in their renewed migration, they reached a region where flat rocks were abundant and earth hard to dig, may have evolved the stone vaults.

"As no mention is made in the legend of contact with an unrelated tribe, either at that time or afterward, the Mound builders had no doubt abandoned the site before the advent of the Sioux; otherwise we should certainly have heard of them."

POSSIBILITY OF IMPORTANT DISCOVERIES

In the large, low depression or pond, south of the largest mound occur great quantities of village site debris. One of the survey members collected a peck of broken pottery, chips, arrowheads and burnt stone several hundred feet from the shore. As the bottom of the pond is below the depth at which village site material has been found, it is difficult to account for the presence of so much fragmentary material. It is not claimed that the ancient Cahokia people lived on pile dwellings over the water, but it seems advisable to make a thorough examination of the bottom of this and other ponds.

The original diameter of many of the mounds can be ascertained by trenching in from the present feather edge. Scales of copper, the finding of a broken copper serpent, and some fragments of copper indicating repoussé work, point to the possibility of copper being in general use. The copper plates found in Dunklin County, Missouri, and described by Mr. Fowke in Bulletin 37 of the Bureau of American Ethnology report, present a characteristic Cahokia

Design on a fragment of pottery.

design. A fragment of pottery is illustrated in the figure above. On this is the same symbolic bird-head-eye design present on all the copper plates. This design was generally used at Cahokia.

An inspection of the fragments of pottery furnished evidence of the remarkable development of the ceramic art and it is to be hoped that perfect vessels will be secured for study.

The relationship of Cahokia to other mound groups in the region is important and has as yet received no attention. The range of possibility for archeological work of importance at Cahokia seems almost limitless. The place certainly merits detailed and intensive study on the part of some observer for many years to come.

PRESERVATION OF THE GROUP

The chief purpose of the writer's visit to Cahokia the past year was to arouse interest on the part of the public in the preservation of these famous mounds. They could be explored subsequently provided they were protected by the state or the nation, or some wealthy individual. Obviously, they could not be explored satisfactorily if the tracts were sold for commercial purposes and factories erected, as has been suggested. During this present year, the owners assure us the tumuli may be considered safe, yet it is probable that should the state decline to purchase, some if not all of the mounds may become lost to posterity. East St. Louis is rapidly growing and extending its streets, buildings and factories toward the east. A railroad has already been constructed within a mile and a half of some of the largest mounds. Real estate values are increasing and the owners may be forced to sell these properties, since the land is now too valuable to be longer used for agricultural purposes.

Various statements to the effect that the land owners placed a high valuation on their properties, or that the largest mound was to be destroyed by steam shovels and the earth used to make fills across the American Bottoms, have been in circulation. After consultation with certain members of the National Research Council and prominent archeologists it was thought best to make a preliminary investigation. We now know that the owners do not seek more than the ordinary real estate value of their lands, and to such they are entitled. We are also aware that some years of exploration at Cahokia are necessary. It is for the citizens of the state of Illinois to inaugurate and carry to successful termination a movement having for its purpose the preservation of these remarkable monuments. In brief, a state park of 1,000 acres would safeguard for all time these tumuli.* The writer was informed that there were

*Or, even 500 acres would include the chief monuments.

several proposals to make parks of certain areas of bluffs along the Mississippi. From a little below Alton to above Quincy there are many miles of picturesque bluffs which might be secured at any time, and these are in no danger of destruction. This is mentioned particularly, because several men of prominence stated to the writer that they were interested in any state park project provided it was to be located in their particular neighborhood. They did not fully appreciate that Cahokia may be lost irrevocably; other sites cannot be destroyed. Persons really familiar with the situation believe there should be concentrated action by men's and women's clubs, educational institutions and all organizations in order that the bill to be introduced next winter may be certain of passage through the legislature. Wisconsin, Ohio, New York, New Mexico and other states have made parks of their prehistoric monuments. Unfortunately, there are many citizens who do not realize that there is great danger of the Cahokia lands being sold for commercial purposes. While the writer was at Cahokia there was a tentative proposition involving nearly $800,000 made to a certain group of owners. Their patriotism and high regard for the mounds lead them to defer action.

The parks in Ohio—Serpent Mound, Fort Ancient and the great works at Newark—are visited by thousands of persons each summer and are practically self supporting. The great expanse of rich soil lying about the mounds of Cahokia, when leased, would bring in sufficient revenue to take charge of the overhead expense. Many appeals have been made through pamphlets and memorials to the state officials of Illinois on the part of intelligent citizens of that commonwealth and elsewhere. Far back in 1836, Mr. Edmund Flagg, a very intelligent traveler, lamented the fact that some of the St. Louis mounds had been destroyed. He offers this suggestion: "The ancient tumuli could, at no considerable expense, have been enclosed, ornamented with shrubbery and walks and flowers, and thus preserved for coming generations. . . . . The practical utility of which they are available appears the only circumstance which has attracted attention to them. One has already become a public reservoir, and measures are in progress for applying the larger mound to a similar use, the first being insufficient for the growth of the city." Flagg's plea might well be transferred to Cahokia at the present time. People come from remote sections of the United States to see the Cahokia mounds. While we were at work last

year a Scotchman and an Englishman, touring America, visited the group. The mounds preserved in a state park would be a continual reminder to coming generations of the strange and interesting life of our prehistoric Indians. To destroy them and erect on the spot where they once stood unsightly factories is nothing short of sacrilege, and we of today would be subject to severe censure. Future generations would say of us, even as has been said of Easau of long ago, that we sold our priceless heritage of the ages for a mess of pottage.

RESOLUTION PASSED BY THE AMERICAN ANTHROPOLOGICAL ASSOCIATION AT THE ANNUAL MEETING IN BROOKLYN, N. Y., DEC. 29, 1921.

Since it has come to our knowledge that steps are now being taken by citizens of the State of Illinois to preserve the large and unique group of pre-historic earth-works near East St. Louis, we desire to express our hearty approval of these efforts and our sincere wishes for the success of the undertaking. Not only do we regard the preservation and restoration of this group as urgent, but it is also highly desirable that an early survey of the whole site be made to reveal the culture of the builders and their place in the pre-historic life of the Mississippi valley.

ALFRED V. KIDDER, Secretary

NOTE

For the benefit of any readers unfamilar with the work of the American Anthropological Association, it is well to state that the men and women comprising it represent all the leading museums, research institutions, and many of the colleges of the entire United States. Nearly all persons engaged in the study of the American Indian both past and present belong to this organization.

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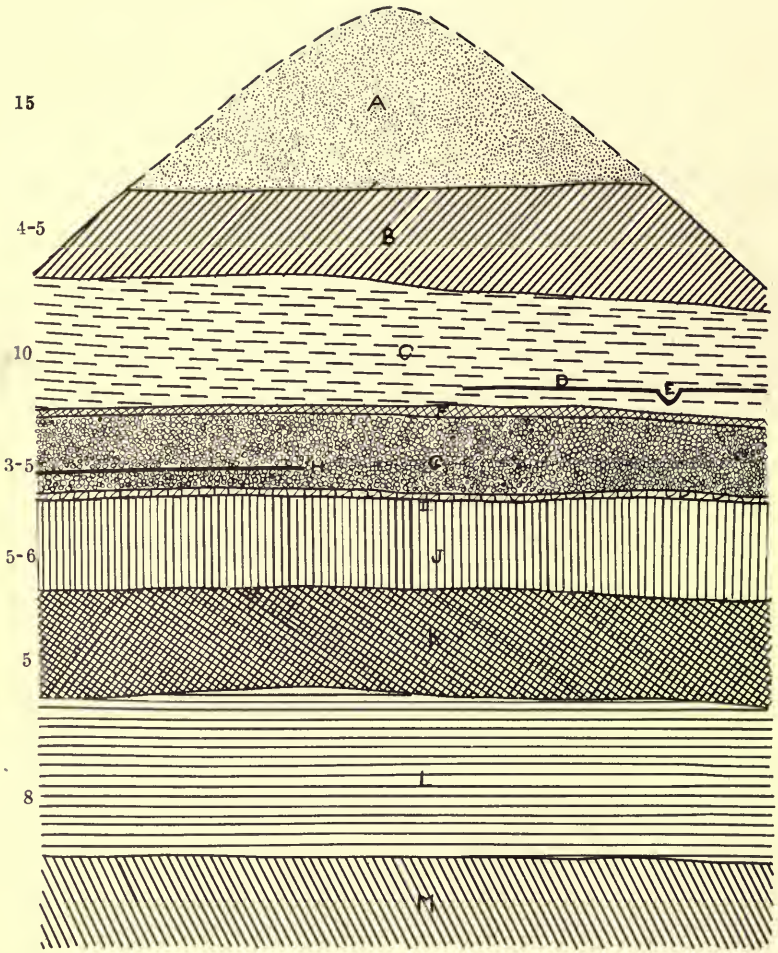


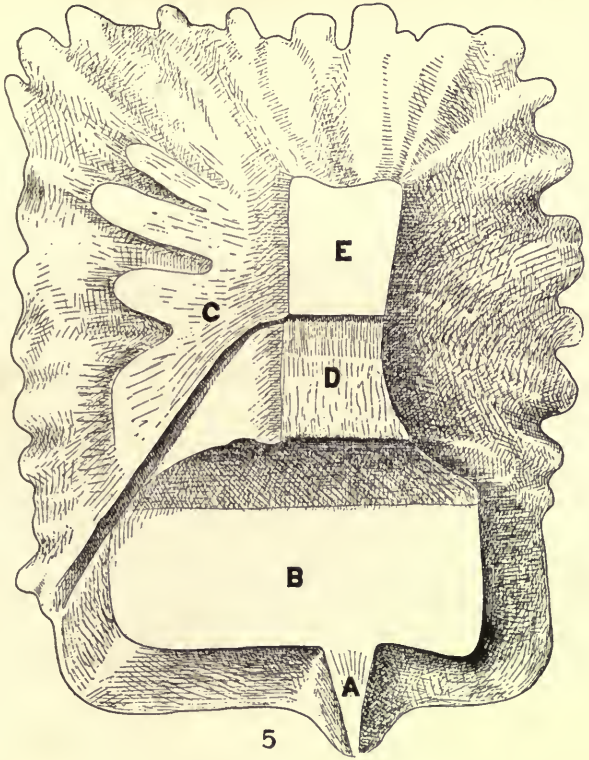
PLATE II

Fig. 2.—Cross section of Kunnemann Mound a short distance north of the center. The outline is not exact, but it is approximate. Depth of strata in feet at the left of the figure. A—Top removed. B—Dark, rather uneven gumbo layer. C—Yellowish loam, mixed with sand. D—Burned floor. E—Altar. F—Vegetation. G—Dark soil, rather irregular. H—Light sand stratum. I—Thin vegetation layer. J—Yellowish loam. K—Dark earth. L—Mixed earth. M—Clear sand base.

PLATE III

Fig. 3.—East view of Monks Mound. Photograph by Mr. Gordon Sewant.

Fig. 4.—North view of Monks Mound. Photograph by Mr. Gordon Sewant.



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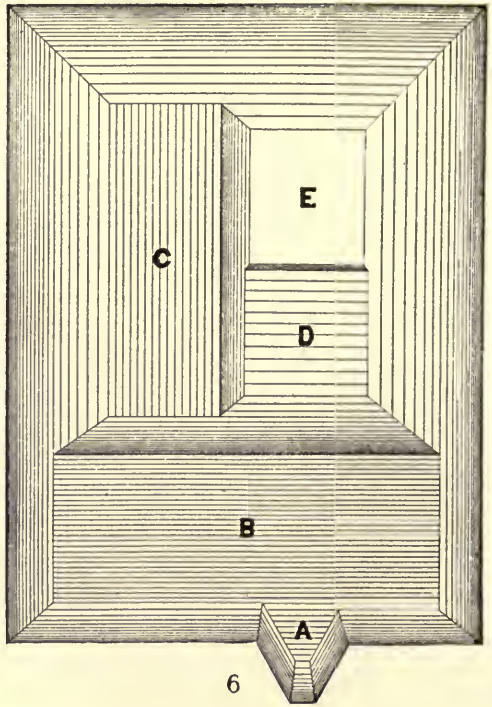

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PLATE IV

Fig. 5.—Monks Mound as it appeared at the time of Putnam's visit. Fig. 6.—Dr. Patrick's restoration of Monks Mound.

PLATE V

PLATE VI

Fig. 8.—View of the Fox Mound and another mound located about three-fourths of a mile south of Monks Mound. Photograph by Mr. Gordon Sewant

PLATE VII

Fig. 9.—One of the smaller mounds of the group. North of Monks Mound. Photograph by Mr. Gordon Sewant.

PLATE VIII

10.—A large pond near the Kunnemann Mound. Fig. 11.—Trench in the Kunnemann Mound.

Fig. 12.—The face of the trench of the Kunnemann Mound at a height of 25 feet.

PLATE IX

Fig. 13.—The altar of baked clay in the Kunnemann Mound.

PLATE X

Fig. 14.—Skeleton of Cahokia Indian in the Edwards' Mound.

PLATE XI

Fragments of pottery from the Cahokia mounds. These were collected by Dr. George Higgins many years ago. Fig. 15.—Forearm and hand. Fig. 16.—Red and white ware. Fig. 17.—Handle to vessel. Fig. 18.—Red ware with depressed squares in which were probably inserted small squares of shell. Fig. 19.—Ornament made of pottery. Fig. 20.—Typical Cahokia design.

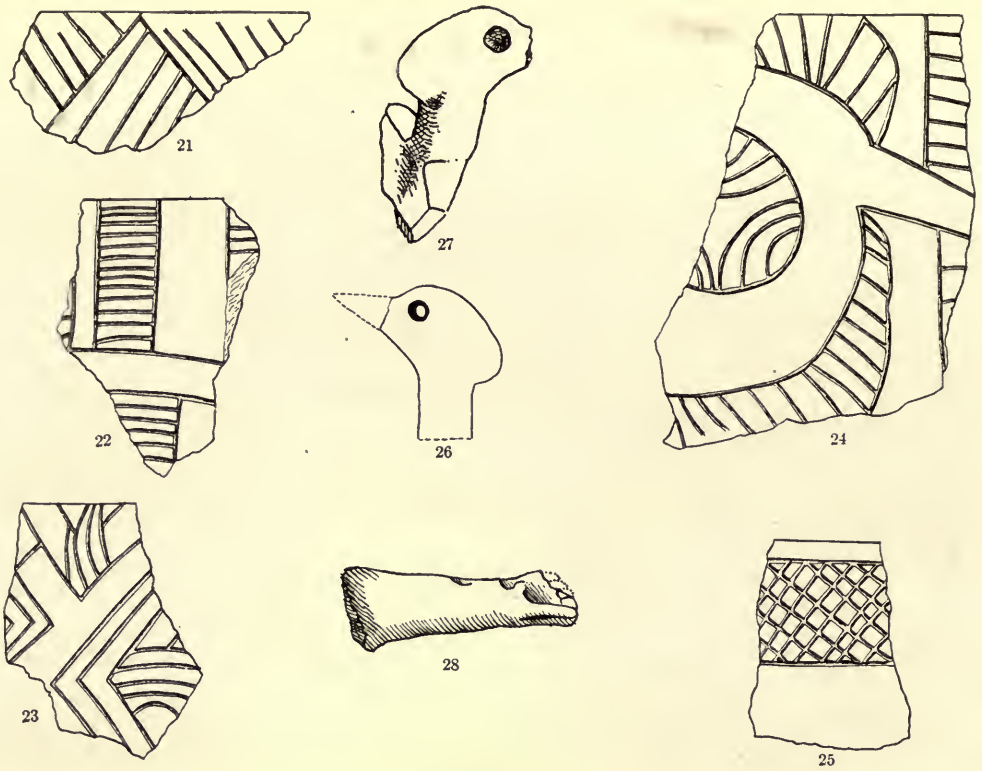

PLATE XII

Fig. 21, 22, 23, 24, 25.—Designs on pottery fragments from Cahokia. Fig. 26.—Head of a bird in white and red. Fig. 27.—Head of bird. Fig. 28.—Forearm and hand. Figures 27 and 28 show the beginnings of sculpture in clay. From collection of Dr. George Higgins.

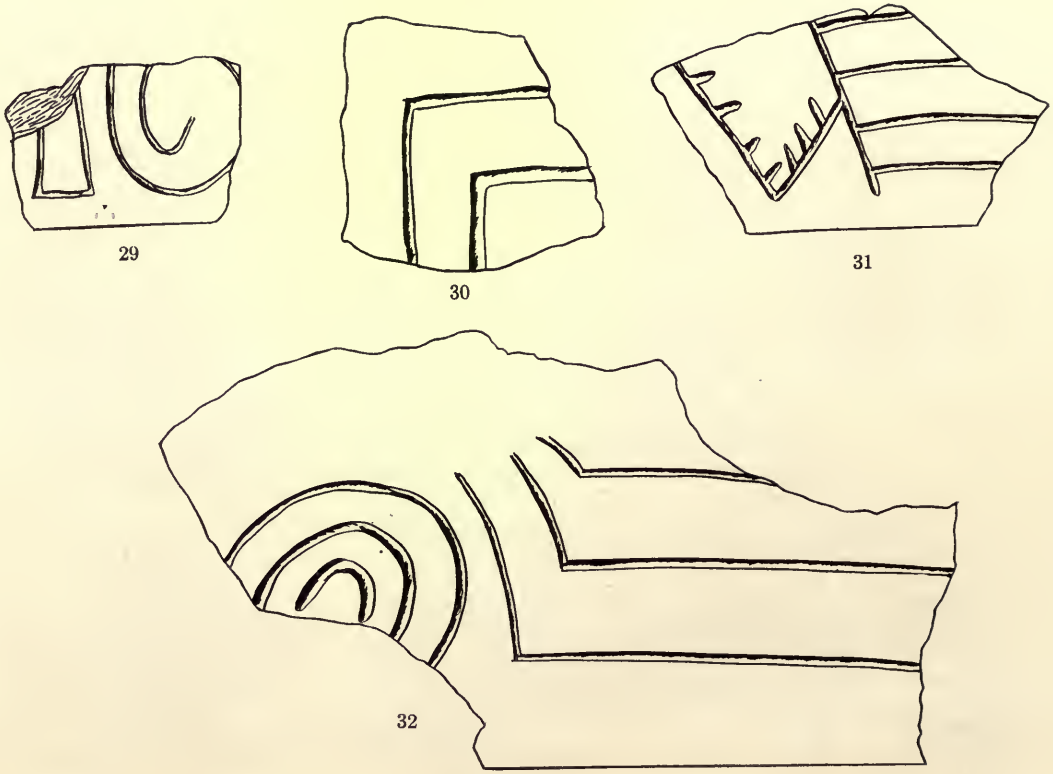

PLATE XIII

Figs. 29, 30, 31, 32.—Designs on pottery fragments from Cahokia. From collection of Mr. Fred Ramey.

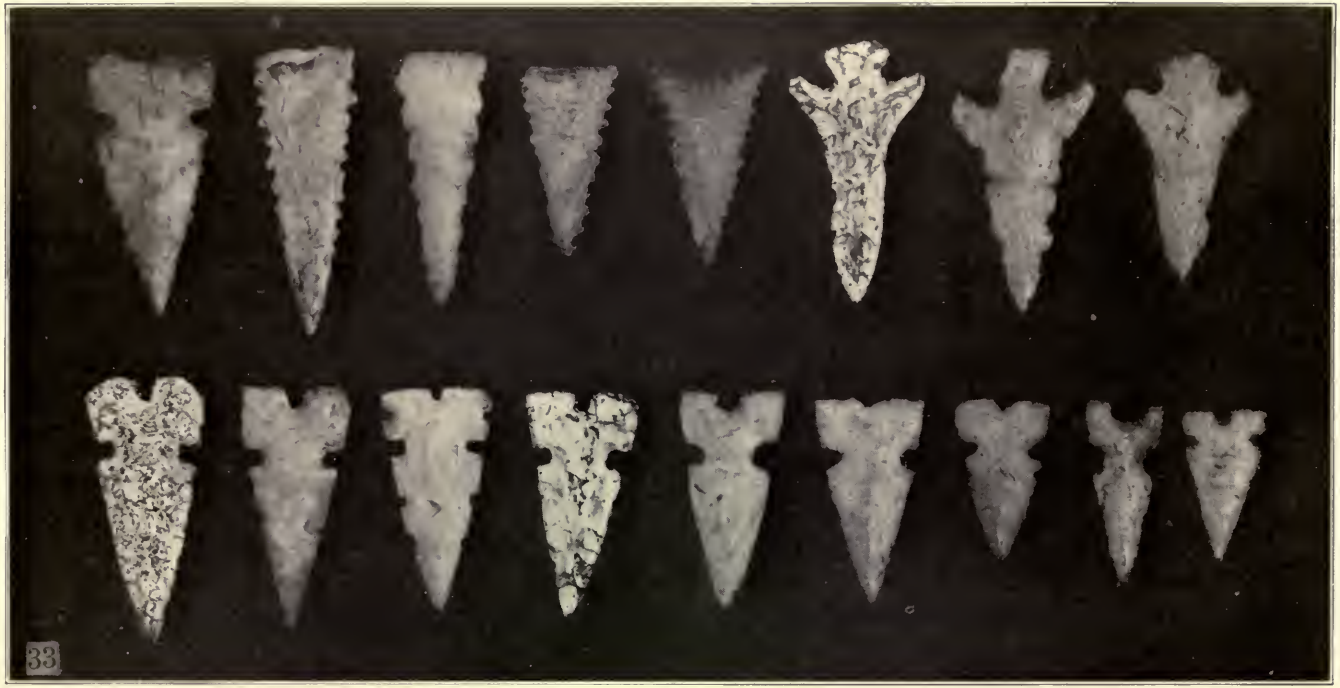

PLATE XIV

Fig. 33.—The Cahokia type of arrowheads. From collection of Dr. George Higgins.

PLATE XV.

Fig. 34.—The hollowed bone awl referred to on page 30.

Fig. 35.—A slender, broken drill.

Fig. 36.—Cahokia type arrowheads.
All found in the field opposite Monks Mound. From Ramey collection.

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